Af

Docket No.: GR 98 P 1075

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

MAIL STOP: APPEAL BRIEF-PATENTS

By: _____ Date: August 6, 2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

15#/Appeal Brief 8/21/03

Applicant : Manfred Fries et al.

Applic. No. : 09/627,181

Filed : July 27, 2000

Title : Smart Card Module for Biometric Sensors

Examiner : Ashik Kim - Art Unit: 2876

BRIEF ON APPEAL

Hon. Commissioner for Patents,
Alexandria, VA 22313-1450

S i r :

This is an appeal from the final rejection in the Office action dated February 11, 2003, finally rejecting claims 1-8.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of $320.00 to cover the fee for filing the *Brief on Appeal*.

08/13/2003 BABRAHA1 00000062 09627181

01 FC:1402 320.00 OP

Real Party in Interest:

This application is assigned to Infineon Technologies AG of München, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-8 are rejected and are under appeal. No claims were cancelled.

Status of Amendments:

No claims were amended after the final Office action. *A Response under 37 CFR § 1.116* was filed on May 8, 2003. The Primary Examiner stated in an *Advisory Action* dated May 27, 2003, that the request for reconsideration had been considered but did not place the application in condition for allowance.

Summary of the Invention:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention

relates to a smart card module for biometric sensors used in smart cards.

Appellants explained on page 7 of the specification, line 1, that, in all the figures of the drawing, sub-features and integral parts that correspond to one another bear the same reference symbol in each case. Referring now to the figures of the drawing in detail and first, particularly, to Fig. 1 thereof, there is shown a detail of a smart card 1 having a depression 3 which is made in its surface 2 and into which a smart card module 4 is inserted.

Appellants further explained on page 7 of the specification, line 10, that the smart card module 4 has a board-like or foil-like support 5 that is made of an epoxy layer 6, an upper conductive layer 7 and lower conductive regions 8. In the center of the support 5, there is a through cutout 9 that forms a rectangular window 9.

It is also stated on page 7 of the specification, line 16, that, disposed on the underside of the support 5 is a sensor chip 10 that has an upper active surface 11. The active surface 11 is in the form of a sensor surface which is able to recognize a fingerprint of a finger applied to the active surface 11 and is able to pass the structure of the

fingerprint to an evaluation unit (not shown in more detail) in the form of electrical pulses. The sensor chip 10 is somewhat larger than the window 9 and is disposed immediately below the window 9, so that the active surface 11 is directed toward the window 9, and the sensor chip 10 can be mounted on edge regions of the support 5 next to the window 9. Electrical connections of the sensor chip 10 are connected to associated conductive regions 8 of the support 5 via chip contact points 12, these chip contact points 12 being situated in the edge region next to the window 9. The smart card module 4 and conductor tracks 13 of the smart card 1 are electrically connected by external connections 14 situated between the conductor tracks 13 of the smart card 1 and the conductive regions 8 of the smart card module 4.

Appellants described on page 8 of the specification, line 10, that, in addition, situated between the external connections 14 and the chip contact points 12 there is a stiffening element 15 in the form of a stiff ring that is placed onto the support 5 from below.

Appellants further outlined on page 8 of the specification, line 15, that the entire smart card module 4 is permanently bonded by a flexible adhesive 16 in a raised edge region of the depression 3. The flexible adhesive 16 has a sufficient

flexibility and thickness to allow it to yield appropriately when the smart card 1 is bent. This prevents the relatively stiff smart card module 4 and, in particular, the sensor chip 10 from being damaged.

It is stated in the last paragraph on page 8 of the specification, line 23, that, to prevent appropriate bending stresses from being transmitted from the external connections 14 via the conductive regions 8 to the chip contact points 12, and from there to the sensor chip 10, it is possible for the conductive regions 8 to be configured as conductor tracks 8 running in a meander shape, an example of the conductor tracks 8 being shown in a plan view in Fig. 3.

Appellants explained on page 9 of the specification, line 5, that Fig. 2 shows a schematic, perspective view of the smart card module 4 from Fig. 1. The upper conductive layer 7 forms a ground frame surrounding the window 9. In this illustrative embodiment, a single window 9 is provided in the support 4, the window 9 being large enough to be able to record an entire fingerprint.

Appellants further explained on page 9 of the specification, line 12, that Fig. 4 shows a schematic plan view of an alternative embodiment of the invention, in which the sensor

chip 10 is subdivided into four segments 10a, 10b, 10c, 10d. In the illustrative embodiment shown, the segments 10a, 10b, 10c, 10d are square and of equal size, their outer contours being shown by dashed lines.

It is also stated on page 9 of the specification, line 19, that, when such a quartered sensor chip 10a-d is used, the window 9 in the support 5 is also quartered, i.e. the window 9 has four individual windows 9a, 9b, 9c, 9d which are likewise square and are disposed such that they produce a large square overall. The individual windows 9a, 9b, 9c, 9d are isolated from one another by webs 17 of the support 5, which together form a central cross. The webs 17 serve to mount the segments 10a, 10b, 10c, 10d of the sensor chip 10. The segmentation of the sensor chip 10 ensures that the sensor chip 10 has a certain degree of flexibility, so that the risk of breakage when the smart card 1 is bent is reduced.

It is stated in the last paragraph of the specification, starting at line 5 on page 10, that, if a finger is applied to the window segments 9a, 9b, 9c, 9d, the fingerprint lines, which can be recorded only disjointedly on account of the webs 17, are completed electronically, so that a fingerprint

can be evaluated in the same way as if the webs 17 were not present.

References Cited:

U.S. Patent No. 5,180,901 (Hiramatsu), dated January 19, 1993.

Issues

Whether or not claims 1-8 are anticipated by Hiramatsu under 35 U.S.C. §102(b).

Grouping of Claims:

Claims 1 and 5 are independent. Claims 2-4 depend on claim 1 and claims 6-8 depend on claim 5. The patentability of claims 1 and 5 are separately argued. Therefore, claims 2-4 stand or fall with claim 1 and claims 6-8 stand or fall with claim 5.

Arguments:

In item 2 on pages 2-3 of the final Office action, claims 1-8 have been rejected as being anticipated by Hiramatsu under 35 U.S.C. § 102(b).

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 1 and 5 call for, inter alia:

> a support selected from the group consisting of board-shaped supports and foil-shaped supports, said support having electrically conductive regions connected to said sensor chip and to electrical connections of the smart card, said support having at least one opening formed therein, said sensor chip mounted on said support such that said active surface of said sensor chip is directed toward said support and situated in a region of said opening so that said active surface can be accessed through said opening.

The invention of the instant application relates to a chip card module (4) for installing a biometric sensor (10) in a chip card (1). In the chip card module (4), the sensor chip (10) is attached on a plate or foil-shaped support (5). The support (5) has electrically conductive regions (8) which are connected with the sensor chip (10), on one hand, and with the electrical connections (14) of the chip card (1), on the other hand.

It is known to integrate sensor chips, which record characteristic features of persons, into chip cards, as can be seen from Figs. 1 and 2 and the corresponding description of Hiramatsu. As can be especially seen from Fig. 1, Hiramatsu describes a chip card in which the sensor chips 1

and 3 are directly integrated into the mass of the chip card body. The sensor chip 1 integrated in the card 10 in Fig. 1 is shown in detail in Figs. 4 and 5.

In contrast to the chip card module as recited in claim 1 and the smart card, which includes the chip card module, as recited in claim 5 of the invention of the instant application, Hiramatsu only relates to a chip implanted in the card. The chip has chip electrodes 14 as shown in Fig. 5, which are brought outside the micro-sensors 1a (see column 5, lines 38-39) possibly for realizing a connection with an electrical connector.

A person skilled in the art cannot gather any hint from Hiramatsu that the chip disclosed therein concerns a chip card module with a chip (10) and a support (5) having electrically conductive regions (8) on which the chip can be mounted, as recited in claims 1 and 5 of the instant application. A contact of the chip (10) with the electrical connections (14) of the chip card (1) through the support (5) having the electrically conductive regions (8) can therefore also not be realized by Hiramatsu. The silicon substrate 15 in Hiramatsu cannot be interpreted as a support. In fact, the silicon substrate 15 in Hiramatsu is part of the sensor chip 1.

The Examiner has stated that the pressure sensor 1, the authenticity sensor 3, external contact 11 etc. as shown in Hiramatsu are all chip card modules (see the fifth paragraph on page 3 of the Office action). Appellants respectfully disagree. Those components can be considered as chips but not as chip card modules in the sense of the instant application. As clearly recited in claims 1 and 5 of the instant application, an important part of the chip card module is the support (5) which has electrically conductive regions (8) connected to the sensor chip (10) and to the electrical connections (14) on the smart card (1). In contrast, in Hiramatsu the chip 1 is directly integrated in the chip card 10 without a support.

It is noted that the Examiner never clearly pointed out which part of Hiramatsu shows a support having electrically conductive regions on which the chip can be mounted for realizing a contact of the chip with electrical connections of the chip card. The advantage of the chip card module according to the invention of the instant application is that it can help to prevent the sensor chip from being damaged when the smart card is bent. The chip card module with its specific technical characteristics for installation in a chip card minimizes the risk of breakage, increases security, and

eases the production process. The chip card module according to the invention of the instant application also has the advantage that the electronic function of the sensor chip and the chip card module can be tested before the installation in the chip card.

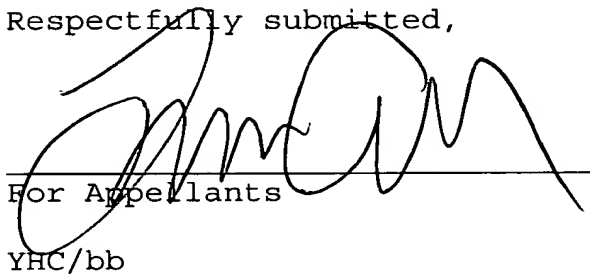
It is clear, especially from Fig. 2, that the focus of Hiramatsu is not on a special embodiment of a chip card module or a chip card including a chip card module. Rather, it is the object of Hiramatsu to realize an individual authentication function through the integration of the components as shown in Fig. 3 and their corresponding functionalities. The manner of integration of the components in the card is thus not important in Hiramatsu.

Clearly, Hiramatsu does not show a chip card module including a chip and a support having electrically conductive regions on which the chip can be mounted for realizing a contact of the chip with electrical connections of the chip card, as recited in claims 1 and 5 of the instant application.

Claims 1 and 5 are, therefore, believed to be patentable over Hiramatsu and since all of the dependent claims are dependent on claims 1 or 5, they are believed to be patentable as well.

The honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,



LAURENCE A. GREENBERG
REG. NO. 29,308

For Appellants

YHC/bb

Date: August 6, 2003
Lerner and Greenberg, P.A.
Post Office Box 2480
Hollywood, Florida 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101

Appendix - Appealed Claims:

1. In combination with a smart card, a smart card module for biometric sensing installed in the smart card, the smart card module comprising:

at least one sensor chip functioning as a sensor and having an active surface; and

a support selected from the group consisting of board-shaped supports and foil-shaped supports, said support having electrically conductive regions connected to said sensor chip and to electrical connections of the smart card, said support having at least one opening formed therein, said sensor chip mounted on said support such that said active surface of said sensor chip is directed toward said support and situated in a region of said opening so that said active surface can be accessed through said opening.

2. The smart card module according to claim 1, wherein said opening is one of a plurality of openings formed in said support, and said sensor chip is subdivided into a plurality of individual sensor segments which are each situated in a region of one of said openings in said support.

3. The smart card module according to claim 1, wherein said support has end regions, and including a flexible adhesive disposed at said end regions for mounting said support to the smart card.

4. The smart card module according to claim 1, wherein at least some of said electrically conductive regions disposed between the electrical connections of the smart card and said sensor chip contain conductor tracks routed in a meander shape.

5. A smart card for biometric sensing, comprising:

a smart card body;

electrical connections disposed on said smart card body; and

a smart card module mounted on said smart card body, said smart card module including:

at least one sensor chip functioning as a sensor and having an active surface; and

a support selected from the group consisting of board-shaped supports and foil-shaped supports, said support

having electrically conductive regions connected to said sensor chip and to said electrical connections, said support having at least one opening formed therein, and said sensor chip mounted on said support such that said active surface of said sensor chip is directed toward said support and situated in a region of said opening so that said active surface can be accessed through said opening in said support.

6. The smart card according to claim 5, wherein said opening is one of a plurality of openings formed in said support, and said sensor chip is subdivided into a plurality of individual sensor segments which are each situated in a region of one of said openings in said support.

7. The smart card module according to claim 5, wherein said support has end regions, and including a flexible adhesive disposed at said end regions for mounting said smart card module to said smart card body.

8. The smart card module according to claim 5, wherein at least some of said electrically conductive regions disposed between said electrical connections and said sensor chip contain conductor tracks routed in a meander shape.